

Carolyn Edmonds, *Board of Health Chair*

BOH Members:

Richard Conlin
Dow Constantine
George W. Counts
Jan Drago
Carolyn Edmonds
Ava Frisinger
Larry Gossett
David Hutchinson
David Irons
Kathy Lambert
Frank T. Manning
Bud Nicola
Margaret Pageler
Alonzo Plough

BOH Staff:

Maggie Moran

KING COUNTY BOARD OF HEALTH MEETING PROCEEDINGS

**February 15, 2002
King County Council Chambers**

Roll call

- Richard Conlin
- Dow Constantine
- Carolyn Edmonds
- Ava Frisinger
- David Hutchinson
- David Irons
- Kathy Lambert
- Margaret Pageler
- Joe Pizzorno
- Kent Pullen
- Alvin Thompson
- Karen VanDusen

Call to order

Vice Chair Alvin Thompson called the meeting to order.

Announcement of Alternates

No alternates were identified.

Approval of the Minutes

Vice Chair Thompson directed the Board's attention to the minutes of January 18, 2002. He noted one correction to the minutes - page 9, a statement was attributed to him incorrectly. The correction was noted for the record. Vice Chair Thompson called for a motion to accept the minutes. The motion was made and seconded. The Board voted to approve the minutes of January 18, 2002.

Chair's Report

Vice Chair Thompson invited Board Member Pageler to give the report from the Ad Hoc Membership Selection Committee.

Board Member Pageler stated that the Ad Hoc Membership Selection Committee consisted of David Irons representing the King County Council, David Hutchinson representing the Suburban Cities, Dr. Pizzorno representing the professional members of the Board, and Board Member Pageler representing the City of Seattle. She stated that the Committee had convened and had a recommendation for Board Chair and recommendations to fill expiring positions for two of the Health Professional seats.

Board Member Pageler stated that the Committee's recommendation for Board Chair was Carolyn Edmonds.

Vice Chair Thompson restated the Committee's recommendation for Board Chair. He called for a nomination.

Board Member Hutchinson nominated Carolyn Edmonds for Board Chair. Board Member Hutchinson stated that Board Member Edmonds was most recently a Representative in the State Legislature and brought to the Board her experience with budget issues. He also noted that Board Member Edmonds was an extremely energetic person. He stated that it was his pleasure to nominate Carolyn Edmonds for Chair of the Health Board.

Vice Chair Thompson called for a motion to accept the nomination.

Board Member Pageler seconded the motion. She added that in her estimation, Board Member Edmonds would bring to the role of Board Chair a long-standing commitment to health care, particularly for seniors; knowledge of public health, and her success as an advocate for many of the issues that the Board cared about.

Vice Chair Thompson inquired if there were any nominations from the floor. There being none, he called for a vote. The vote was unanimous in support of Board Member Edmonds.

Vice Chair Thompson invited Board Member Pageler to continue the Committee Report.

Board Member Pageler stated that the Committee recommended Karen Van Dusen for Health Professional Member - Seat #1 for a term of one year. Board Member Pageler stated that after review of the Board Operating Rules they realized that current Health Professional Members would only be eligible for one more year of service on the Board. Board Member Pageler stated that they were delighted to learn that Board Member Van Dusen was interested and able to serve an additional year.

Vice Chair Thompson called for a Board Vote for Board Member Van Dusen for Health Professional Member Seat #1 for a term of one year. The vote carried.

Board Member Pageler stated that the Committee recommended Dr. Joseph Pizzorno for Health Professional Member - Seat # 3 for a one-year term. Board Member Pageler indicated that Board Member Pizzorno - also a member of the Ad Hoc Membership Selection Committee - had not participated in the Committee's deliberations about the Health Professional Membership seats. Board Member Pageler stated that Board Member Pizzorno had added a great deal of value to the Board over the last few years and taught all of them a great deal about how to balance various forms of medicine and public health.

Vice Chair Thompson called for a Board Vote for Board Member Van Dusen for Health Professional Member Seat #3 for a term of one year. The vote carried.

Vice Chair Thompson turned the meeting over to new Board Chair Edmonds.

Chair Edmonds thanked Vice Chair Thompson and members of the Board for selecting her as Board Chair. She stated that she has a longstanding commitment to the health of their residents and had served on the Legislature for three years on the House Health Committee. She added that while she might not have the deep familiarity with the issues many of them had, she did have nodding acquaintance with most of the issues and a deep passion to bring forth for the Board's consideration issues that were of concern to residents and to their health. Chair Edmonds stated that the Board of Health served an important role in county government and is what she considered a "sleeping giant". She stated that if they did not have a Board of Health or a Department of Health, they would be in a world of hurt. She added that the Board and the Department did a lot of things [to protect and promote] resident's health that they were unaware of, and that was what made their role so much more important.

Chair Edmonds noted that the County Executive had entered the Chamber and wished to address the Board. Chair Edmonds invited County Executive Ron Sims to take the floor.

County Executive Sims greeted the Board. He stated that when one talked about health care, about the Office of Public Health and all the functions of the Department, one realized that it impacted everyone. He stated that there had to be a certain attitude that went with the delivery of those services. He stated that people had to be inclusive, had to respect the various differences that existed in the community such as people who were overweight and those who were fit; people who spoke a different language; or people who lived in White Center or lived on Mercer Island. He stated that the most challenging thing was to be inclusive. He said, "don't tolerate me because I'm an African American, include me because I'm an African American. And I will do the same to all those that I meet."

County Executive Sims announced that he was before the Board to honor some people who had demonstrated a commitment to diversity and inclusivity. He announced that Dr. Alonzo Plough, Kathy Uhlorn and Anita Geving were being honored with the "2001 Outstanding Achievement Award" from members of the Public Health - Seattle and King County Diversity Management Committee. He stated that this award was for their efforts to create and sustain diversity initiatives, provide leadership in the workplace and community, and their participation in the work of the Diversity Management Committee."

County Executive Sims invited the award recipients to come forward to accept their award.

Dr. Plough expressed his surprise at receiving the award. He stated that the Department had started the diversity initiative because they realized that respecting, valuing and actually putting diversity into added value to the Health Department and made for better government services. He added that they also needed to reflect the diversity and the many experiences of the people that they served in the community, so it was also fundamentally good public health practice. He stated that it was really the department, that took up the charge five years ago, that really deserved the award, not him.

County Executive Sims thanked Chair Edmonds and wished her well. He noted that he had been on the Board years ago and appreciated the Board's time and their courage.

General Public Comments

General Public Comments Chair Edmonds announced that the next item on the agenda was the Public Comment Period. She inquired if there were members of the public who wished to

speak on issues other than dental amalgams. There were none and thus she commenced with instructions for the public comment period. She indicated that she would call individuals forward who had signed up to address the Board. She stated that each person would have three minutes to address the Board. Chair Edmonds proceeded to call each individual.

[The following sections were transcribed directly from the audiotape. The only edits that have been made for the purposes of these Board minutes are known typos, made by the contract transcriptionist.]

John Rodgers

"Madame Chairman, I am waiving my time to Sue. She is going to represent our sub-group, whatever you would call it, with our prepared statement."

Sue [no last name provided- individual did not/would not speak into a microphone and therefore very few of her remarks were captured on tape]

Hi, my name is Sue. I _____. The last two years I've suffered from suicidal depression. _____ Alcoholics Anonymous. _____. But nothing worked until somebody finally told me that I possibly suffered from _____. But for some reason _____ more and more _____ I feel I _____ and our family _____ best times from _____. _____ Excuse me, but _____.

Paul Ritola

Thank you. You did a good job. I'm Paul Ritola from Battle Ground, Washington. And I have something that's an excerpt from the National, from Natural Health of July/August, 1992. Humans have recognized the toxicity of mercury since it first began killing Roman miners nearly 2,000 years ago. In modern times mercury derived from the workplace has been proven to cause brain and kidney damage, birth defects and symptoms of multiple sclerosis. Mercury is a neurotoxin. It damages the nervous system and causes a wide range of emotional and behavioral disorders. It is more poisonous than lead or arsenic. Recent studies done at the University of Kentucky Medical School, which was in 1991 incidentally, have cited mercury in brain tissue as a possible cause of Alzheimer's disease. I think Mr. Warren can attest to that. People exposed to mercury suffer an array of symptoms that may include dizziness, arthritis, colitis, and loss of mental acuity and psychosis. Like the polymorphous cyborg in Terminator 2, mercury usually changes shape and state going from a liquid at room temperature to a gas at slightly higher temperatures. Mercury vapor is released from the amalgam fillings every time you chew, drink or brush your teeth. The American Dental Association argues that these emissions are small and harmless. But new research suggests otherwise. For example, in 1991 the Environmental Protection Agency ordered that mercury be removed from the interior latex paints because dangerous quantities of mercury were shown to escape in paint fumes. Writing in the March 21, 1999 issue of the _____ Journal of Medicine, Dr. Murray Vimy, or J. Vimy and his colleague Dr. Fritch Lorscheider, both of the University of Calgary pointed out that exposure to mercury vapor was greater for those with amalgam fillings than for those using latex paint in an enclosed room. When the World Health Organization compared human exposure to mercury from food, including fish, air, water and amalgam filling, WHO scientists, for the World Health Organization scientists concluded that by far the greatest single source of mercury to human tissues was dental amalgams. Most study has shown that a safe minimum dose exists. Symptoms are known to occur at least among some of the population at every level of exposure. Emotional effects of

mercury in which symptoms are non-amalgam and amalgam - sudden anger with non-amalgam there's one. With amalgam there's 10. Depression - non-amalgam is 7 and amalgam is 18. This says, "Wish you were dead." With non-amalgam there's 2, with amalgam there's 4. Irritability is 9 and 19 is with amalgam. Suicidal tendencies 1 and with amalgam is 4. Divorced 0 and with amalgam is 1. Frequent anxiety is 9 and 19 with amalgam.

Lola Ritola

Thank you for letting us be here. I'm Lola Ritola from Battle Ground, Washington. "Mercury vapor releases from dental amalgams may play a role in mental illness. Comparisons of people with and without mercury containing fillings showed significant differences in their subjective reports of their mental health." And that's from the American Journal of Psychotherapy, October of 1989. Blood and urine tests do not accurately detect the amount of mercury in the body. Once inside the bloodstream mercury imbeds itself in tissues and fat cells and will not be detected in the blood. This elusiveness has prevented scientists from knowing conclusively if the amalgams are the source of mercury in the brain, kidneys and other organs. In addition, know cause and effect relationship has been established between amalgams and any specific disease. To understand better how mercury migrates from amalgams, researchers at the University of Calgary placed radioactive mercury in the amalgam fillings of monkeys whose teeth chewing patterns and diets resemble humans. Without four weeks the radioactive mercury appeared in several organs with concentrations in the kidneys and intestinal tract. In 1991, Germany banned the common type of amalgam filling because of the adverse affects of mercury. And Sweden provides government support for those citizens who want to have their amalgams replaced. And we were in Colorado Springs, Colorado in 1994, went through their historic mining museum that shows about mining gold and metals. And we just happened to take this, it was on the wall right above the exhibit, and here's what it says, the poster says. "Mercury is a heavy metal deadly to all animals including humans. In Mexico thousands of men and horses died because of the Spanish practice of "spearing" [?] the amalgam with feet and horse drawn equipment. American millmen were more careful, but mercury poisoning was not uncommon in the West. Mercury quickly penetrates the skin causing loss of hair and teeth, bone and brain damage and cancer. Because of its lethal nature mercury is not used in this exhibit." And this is a public museum and this was on the wall right above the exhibit. Thank you.

Ann Clifton

Madame Chair and members of the Committee, thank you for having us. I'm Ann Clifton. I'm co-Chair of the Mercury Awareness Team of Washington. I'd like to have our members stand up that are present. They'll give a little more testimony than I will. Go ahead and sit down. They'll be testifying. Our main point today from Mercury Awareness Team is that our two bills to have a task force study on mercury amalgam fillings are held up in the Committee by Senator Pat Thibaudeau and Representative Eileen Cody. We have bills in both the House and the Senate, and we feel that those bills should be heard. They are vital importance to the people of the State of Washington. Thank you. And I'm deferring my time to Sandy Duffy, part of it.

Chair Edmonds interjected that Committee cutoff had occurred in the Legislature and any bills that were in a Committee that had not had a hearing or passed out would not be addressed this year.

Sandra Duffy

Board members, I am Sandra Duffy, Lake Oswego, Oregon, and a founding member of Consumers For Dental Choice Northwest, a Washington and Oregon entity. I am also a native Washingtonian. During the day I'm a lawyer for Multnomah County, Oregon, but in my other life I'm a health advocate. Several years ago my 48-year old husband was sent home to die of a very aggressive prostate cancer. I learned that alternative medicine holds out hope for those with cancer but cures or disease control is predicated on strengthening the immune system and getting the toxins out of our bodies and out of our lives. This is when I first learned that silver dental fillings are really 50% mercury. Upon learning that mercury suppresses the immune system and that there is no hope of recovery with mercury fillings in place, my husband had them removed. He is healthy today. He goes to work at his law firm every day, he wrestles with our 11-year old son every evening. He still has cancer but his immune system is keeping it under control. I had my fillings removed as a health precaution. The migraine headaches I had been plagued with never happened again. My county's self-insured health program no longer pays \$11 a pill for Emetrix for me. Why is the FDA allowing mercury in dental fillings? I am a government lawyer and I believe a government is supposed to protect and help its citizens. But the FDA Dental Division is filled with ADA dentists who are advised by advisory boards filled with more ADA. They boldly reject all published peer reviewed scientific articles finding mercury amalgams contribute mercury to the human body or cause harm. And they confidently rely on biased reviews published in their trade journal. The ADA held patents for 20 years on two popular amalgams. The ADA received a royalty payment for every patent amalgam placed. This is a clear conflict of interest. The ADA also has an ethics gag order against dentists, Rule 5A. It prohibits dentists from telling patients that mercury fillings contain a toxic substance and that removing them would be removing a toxin from their bodies. However, even the manufacturers of amalgam include a packing slip, it's called an MSDS sheet, with those mercury amalgams, and are toxic to the kidneys and to the brain and to the nervous system. Why does the ADA prohibit dentists from passing on this important information to dental consumers? Wouldn't you want to know? Additionally, there are hundreds of peer reviewed medical journal articles showing links between mercury amalgams and health problems. This is from the archives of Environmental Health, and it says that mercury and breast milk is not primarily from fish but from mercury amalgams. This study from the Journal of Dental Research says that military men with mercury amalgams have 4.5 times as much mercury in their bodies as men without mercury amalgams, and 90% of it comes from dental fillings. This study in Neuro Report says that a video of brain neurons after exposure to extremely minute amounts of mercury strongly implicates mercury as the cause of neurodegeneration like Alzheimer's. This study in Neuro Chemistry says that the study shows that mercury may play an important role in the disease process of Alzheimer's. Okay. I was given the extra two minutes from Ann Clifton.

Chair Edmonds indicated that Ms. Duffy could proceed.

Sandra Duffy

Okay. This study in *Psychological Report* says that the mental health of multiple sclerosis patients improves after the removal of their mercury amalgams. You have been given a copy of my testimony, or at least the clerk was going to give you a copy of my testimony along with attached exhibits. Exhibit 1 is a brief recitation of medical journal articles from 1957 through 1984, which unequivocally show mercury amalgams cause gingivitis and periodontal disease. Exhibit 2 is a copy of the ADA's brochure assuring patients that silver fillings are safe. This is what you can find in

your dental office about silver fillings. Attached to it also is a rebuttal that I have prepared to each statement made in this brochure. It has over 200 medical journal article references. If any of you want any of those articles, I would be pleased to get them for you. Exhibit 3 is the Material Safety Data Sheet from the manufacturers that actually state the warnings. They say it's contraindicated and should not be put in pregnant women or children under 6, but no dentist ever tells a parent that. And finally, Exhibit 4, which is attached in its entirety to the original that I gave the clerk, is a 101 page scientific review of scientific literature showing unequivocally that mercury and mercury amalgams are harmful. The rest of the packets that you will have will have a URL Website address from which you can download that 101 page document. It has over 500 medical journal sites. I am requesting, beseeching, imploring you to pass a resolution requesting Lieutenant Governor Brad Owen to bring the Mercury Amalgam Task Force Study Bill which he sponsored to the floor for a vote. Health Committee chairs have refused to hold hearings as Ann Clifton indicated. The health harm and health care costs associated with mercury amalgams represents many millions of dollars in this State and millions in this country. It is time to bring this controversial issue into the open for real scientists to review and consider. Dentists are tooth mechanics or surgeons, they are not scientists or researchers, and they have no business telling federal agencies or the rest of us that a toxin isn't toxic. Thank you.

Mary Ann Newell

My name is Mary Ann Newell, I'm from Vancouver, Washington. I'm giving you a copy or you're going to be getting a copy of a letter that I sent to the American Dental Association on June 15, 2000. I said, "Dear ADA, I want to be added to your list of people with mercury poisoning due to amalgam mercury fillings. Here is my personal story that I share with everyone to include state and federal officials. I am working hard to expose the dangers of mercury fillings because I know it is real. If you need copies of my test results, please don't hesitate to call me." They never did. I consider myself a lucky mercury poison person because I found out why I was sick. I was very sick in 1996. I went to Oregon Health Science University and I was given lots of tests, given lots of drugs, and I got no relief. Well, my husband and I asked always why, why did I have excessive saliva? Why did I have constant sore throat? Why did I have my mouth banging non-stop every waking minute of my day? Why did I have the inability to distinguish taste? Why did I have a constant metallic taste in my mouth? My symptoms got worse when I was at Oregon Health Science University and it was my last appointment, Dr. Anderson, we told him we were going to remove my fillings. He got angry with us. Well, I found a doctor in Portland that believed in mercury poisoning because of my fillings. I removed my fillings, I detoxed mercury from my body. My symptoms got almost better instantly and other symptoms improved. In fact, things that I never even associated - restless legs, knee joint pain and dry skin - all got better. Now I want to, you're all going to be getting, I hope you got them, a chocolate candy bar in front of you. They have almonds. Now as you eat your candy bar and munch on them with your silver black and gray fillings I want you to know that those silver black/gray fillings are 50% mercury. The candy bar company told you there's almonds in that candy bar. When was the last time a dentist ever told you your filling was 50% mercury? I'm working really hard to spread the word about the dangers of mercury fillings and the word is spreading. Thank you.

Christy Diamond

Hi, I'm Christy Diamond. When I was in second grade I had my first amalgam fillings placed in my mouth, and I had a bunch. Before I was done with

second grade I had horrible hay fever. I couldn't survive 9 months out of the year without drugs. That continued until I was in my early 20's, did get better. I was then struck with endometriosis, ovarian cysts, which I had to have surgery for. Then I decided, I was married and I wanted to have children, and so I prepared myself. I ate wholesome foods, I learned about being a good mom. I cleansed my body with everything I could get my hands on to learn about how to do this, and I was blessed with a beautiful child when I was 27. When I was 30 I was blessed with another child - two girls - wonderful girls. I learned about mercury amalgam poisoning because I was doing all the right things to be healthy but I wasn't. In '86 I decided just as a preventive method, just as a preventive to go to a dentist to have my mercury amalgams removed. I got sicker because he didn't protect me. I was not warned nor was I educated about any of the dangers of exposure in having them removed. As my children grew older I noticed things. My youngest child especially, she went through puberty and became a young woman, became very emotional, not the well balanced child she was in the beginning. My oldest child developed asthma, or my youngest child developed asthma. I finally realized that it was mercury amalgam poisoning. I had my children tested. I had a DMPS push which will show you what types of metals that are in your body. I had nine metals. All of them are common to amalgam fillings. My children when they were tested at 19 and 21 had the very same metals in their mouth. They do not have any dental work, not a stitch in their mouth. We are now working on getting the metal out of their mouth and guess what? They're getting better. The public must know about this and it was people just like you who made the decisions that exposed me and my family and my loved ones and the world to this, and it was all about money and avoiding litigation. And I insist that you do the right thing. Thank you.

Elaine Stannard

I'm Elaine Stannard, and I have with me a House Bill in the United States Congress that was introduced by Representative Watson of California, and there are copies for the Board. This Bill is a bill to prohibit after 2006 the introduction into interstate commerce of mercury alloy intended for use as a dental amalgam and for other purposes. I'm certainly not going to read the entire thing, but just a couple points from the Bill. "Mercury does not change its physical properties when mixed with other metals in an amalgam." This is one of the arguments that I have heard that when mercury is in the amalgam it is safe. It's toxic when it's out in the environment before it's put in. It's toxic after it's taken out. But the dental people say, "No, while it's in your mouth it's safe." And that's a chemical impossibility. The other point that I wanted to make, and this is what I will get to in a personal way. A number of agencies now are saying that children in particular, especially those still in the womb, and that's number 7 in the Bill, are very much in danger from mercury and therefore in number 9 it says, "No product containing mercury should be given to children or pregnant women." And that leads me to my own personal story. When I had my first child I had put off previously having dental work done, and while I was pregnant I had a lot of dental work done. This was way back in the 1940's. I just had lots of old mercury fillings taken out and lots of new ones put in, chunks of mercury actually I can remember being in my mouth. It was a very poor dentist who did it and not to long afterwards, a couple of years later, he in fact committed suicide. My daughter was born well as I thought and unfortunately she never had good health as a child and when she became into puberty she was diagnosed with a thyroid condition and this led to other things which has led to her being disabled for her entire life. She's been given a diagnosis of manic depression, the thyroid is still unresolved and the testing for thyroid is done so poorly these days that even though the clinical symptoms are there, the laboratory results don't show thyroid any more,

thyroid abnormality. And that's my story. Thank you. And I do lay it to the mercury that she was exposed to when she was in utero.

Dawn Dorsey

[Did not respond to her name being called.]

Bobbie Richardson

I'm relinquishing my time to Arlene McDarby.

Arlene McDarby

I'm Arlene McDarby and the last time I was here we were on the subject of health, a different one, but I use three words: politics, power and pecunia, a Latin word for money, and I think we're still on to those three subjects. This is a big subject and actually we've been there and done that before. I can't believe we're doing it again. The last time it was _____, but the sheriff had to send in some help. My real comment would be from *Well Being Journal* on the State of California. "Adios California Dental Board." They've had someone in California who's worked diligently, that it's time this whole subject come out and that something be done. And this person is now in the Congress and working on it, and I will leave a copy for you and it mentions that if California's doing it, surely the whole country will be doing it. In addition to that, it's been a key subject in *USA Today*, "Anxieties Over Toxins Rise at Ground Zero," and mercury was one of those. And then a very distinguished person, Dr. Dietrich Klinghart, "Amalgam mercury detox is a treatment for chronic viral bacterial and fungal illness." And if you have to detox, it must be a problem. Another article by him, "Mercury Toxicity and Systemic Elimination Agents." Again, if it's toxic, it must be a problem. And then just yesterday I found this article in *Family Circle*, "The Hidden Danger in Your Home. Are You At Risk For Mercury Poisoning? And I think that with all due respect to the powers that be, I'm a stubborn and very difficult person, I don't except anything easily. But I think with all the research all over the world, there are countries who have eliminated this, this is a bright area, can't we just say no to this even if there's power, politics and pecunia involved? Thank you.

Tom Warren [part of his testimony was not picked up by the recording.]

. . . and he used to say that mercury didn't leech from gold, I mean, from silver fillings. It was bound, it was tight, didn't leech at all. And the scientist proved that it did. He said, "Well, not enough leeches to cause any problems." We used a Mercury Vapor Analyzer on that and that particular filling that is almost, it was taken out in 1946, almost 50 years old, released 21.2 micrograms of mercury. The average person in the United States has 12 silver fillings - that's 240 micrograms of mercury that would close any business to an almost 2½ times if they were exposed to that much vapor in 8 hours. So you see this is a very, very dangerous substance because it's in there for 24 hours and that's almost 750 micrograms a day. People have said that amalgam fillings aren't expensive. It's probably cost our family and the State of Washington and the City of Seattle, before it's over it will probably cost I estimate maybe as much as \$7 million. Is that less expensive than other materials? I think not. It gets down to economics. They make the money, they cause the problems, and they're not held accountable. _____ a pharmacist. You can go to any pharmacy and you can get a Material Safety Data Sheet that will tell you expected side effects or known side effects of any medication that the pharmaceutical industry uses. You can't . . . [change over in tapes] that two-thirds of all the mercury humans are exposed to come from silver amalgam dental fillings. And here we're trying to get it out of every place else but our mouths. Somehow

mercury's toxic before it goes in your mouth, it's poisonous. In fact, I have readings of it as high as 4 - extreme poison - yet it's safe in our mouths. Is that safe? 750 micrograms of mercury in one day when the average filling is in the mouth eight years? I used to have Alzheimer disease. I'm the first documented person on the road to recovery from it. Of course it's contested. If you ask my wife, she'll tell you that I couldn't carry on a conversation for two minutes, it was impossible. I couldn't remember what the gist of the conversation was. And by the time that she said, she asked me the same question three or four times, we, I had a feeling that something wasn't right or I would have asked her every 30 seconds. I wrote the book Beating Alzheimer's, and I've had, I never tried to keep track, somewhere between 50 and 100 people have come up and tugged on my sleeve and said, "Mr. Warren, you saved my life." One woman they were going to put in Western State Hospital because she wasn't safe to live alone. And she got a hold of my book and went to a dentist that treats mercury toxic people, and I saw her at Costco about, oh, maybe two years ago. That happened, oh, it must have been six years ago now. And she's probably more well than her doctor. That's a fact. So let's just take a look at a few things here in the remaining time.

Here's the mercury exposure. I'm going to use mercury, excuse me, MSDS sheets, Material Safety Data Sheets put out by the manufacturer. If they don't know what's wrong with their materials, the dentists certainly don't. And what they say here is, on the Material Safety Data Sheet, "effects the hazards of working with a material in occupational fashion. For example, an MSDS sheet for paint is not hardly pertinent to someone who uses a can of paint once a year, but it's extremely important to someone who does this in a confined space for 40 hours a week." Now Dense Supply Caulk. Dense Supply Caulk in business since 1999 is one of the foremost manufacturers of dental amalgam in the world. This in part is an MSDS sheet posted on the Internet of April of 1997. USA Today reported in February, 1998 the American Dental Association had Caulk remove the MSDS sheet from their Web page because dental patients found the report too upsetting, too revealing author. Chronic inhalation of mercury vapor over a long period may cause depression or despondency, resentment, criticism, irritability...What I'm trying to say, this is not me saying this, these are the manufacturers of amalgam saying it poisons you, it poisoned the patient, it's dangerous, we shouldn't use it.

Al Schaefer

Good morning, I'm Al Schaefer. I am educated as a chemist. I've taught chemistry in high school and in college. This is my statement. It's easy to imagine a chemist 200 years ago becoming fascinated with mercury. He says to himself while rolling around in his hand, "Look at this stuff. Why it's as heavy as lead, it's shiny bright. And to combine it with silver it makes the silver even more bright. Let's see if I mix it with other metals such as copper and tin, what happens? Gee whiz, it becomes moldable. When it sets over night it's as hard as a rock. I wonder what uses I could put it to? There's lots of it, but nobody knows what to do with it. Well, it stopped the leak in my wash basin, I wonder if I could fill this hole in my tooth? Maybe it would stop the rotting too." You folks can fill in the rest of the story, but this well intentioned chemist didn't realize the effects of his discovery. He didn't know there's liquidity, the metal was poisonous, that the vapors are readily absorbed by the respiratory tract, that even when mixed with raw metals it still vaporizes. That when it is combined to make mercury salt those salts are too hazardous. The poor guy was ignorant of the potential health hazards. These things he didn't know. These things you didn't know are learned by chemists today. Most of the applications are no longer used today because of the known toxicity. Many years ago during the controversy among

dentists whether to use amalgam or not, the ones who were opposed knew of the potential toxicity. They wished to use precaution waiting to test for safety. The others made the claims that are being made and being used today. The sad part to me is that the protectors of our public health and their scientists are accepting the old arguments for substantiation as if they were as ignorant as my hypothetical chemist. I don't think they are. The evidence is out there, our public health scientists seem to ignore that evidence, ignoring protection as if they preferred to classify humans as hazardous waste dumps. Amalgam is only one way to dump toxic waste products into humans. Other ways are not open for discussion today. I want the Department of Health to stop dentists from using amalgam in fillings.

John Frink

Hi, my name is John Frink, and I would like the Health Department to consider, a lot of the testimonial today is very emotional and it's very heartfelt. Some of it's a little scattered. I think people are a little shaky as I am. But I appreciate the Health Department's concern at looking at this issue and considering what we want to leave to the future generations, what legacy. We have a chance now that there's more information coming out yearly on the hazards of this toxic substance. And yes, there's the people that say it's safe and there's the other evidence that counters that. But I would like to point out that just as in Alice In Wonderland, where the Mad Hatter Syndrome, and that's based on the reality that, you know, at the turn of the century when they were making fur hats and the people who were in the manufacturing process used mercuric nitrate if I remember right, and how the occupational hazard of that industry was they all had slurred voice, they were incoherent in their speech, they had trembles and shakes. And that, you know, that mimics Parkinson's Disease that we see nowadays. I mean, it's almost identical And who's to say that over time low dosages of mercury is creating the same effect that the Mad Hatters had 100 years ago, and, the fur, the hat people. So I think it's a valid, it's an issue that needs to be examined and it is a dangerous substance and I don't think it belongs in anybody's body. There are in Spain, I read an article in the National Geographic about Spanish miners that they actually mined the mercury from ore over there. And by law in Spain they're only allowed to work eight days a week, eight days a month, excuse me, and then they take the rest of the month off and do something else because they know that if they work any longer in these mines, that they come down with all kinds of symptoms that are just like the Mad Hatter Disease. And the people that have amalgams in their mouth they don't get 22 days off a month. Without it, it's in there 24 hours a day, 7 days a week. And I don't think it's a good idea and I think we should examine that and the evidence. There's plenty of people here that have a lot of documentation to show that that substance is potentially dangerous. And I think that just as the tobacco companies were required to put labeling on their packages warning of the dangers of cancer, we should do the same thing, the dentists should, you know, inform their people that, you know, this is a substance that could cause harm. Do you want to use it, yes or no? Because there are alternatives to it. And thank you.

Jim Moritz

In 1953 I was 13 years old. My folks had taken me to Alaska and I was sitting in a dentist chair and because this dentist had to come from Anchorage, he's in rush, and my heart almost stopped. He had to flop me upside down almost, all the blood left my head. And my mom's in absolute panic and I, of course, too young to understand what was going on. So he didn't touch me for about two hours. I was in the chair there for about 8 hours that day. And afterwards, almost a year afterwards I had electrical shocks in my mouth every time I closed my mouth. And my mom said

that my personality changed. You know, a 13-year old kid doesn't realize what's going on. But I became to where my temper would just snap just like that. I just literally would lose it and never really understood why until I got, went through a divorce and a few things, and still the raving maniac. When I came out of Alaska and got into mining and started to learn a little bit about mercury and then met a few people that I started to have it taken out of my mouth. At 13 years old my skin became completely dry. There was no oil left in my skin at all on my face. And it's just in the last year that after I've gotten the mercury out that my body's come back to normal where my hands are now oily, my skin, all this because I was able to get the mercury out. And I was able to do it with people that knew what they were doing. But it was a long, long hard road and when you're locked in with the mercury it's like you got tunnel vision, you can't see here and you can't see there, you're just locked into this, and boy I'm going to do it no matter what, and nobody can stand to be around you. But you don't understand it because you're so locked into it that you just can't see the forest for the trees. Well after you get the mercury out all of a sudden your life starts to change. I was injured quite severely and at that time I didn't realize what was going on when you get hit real hard. And I got hit real hard in the head which would have maybe killed anyone. In fact, they thought that I was dead. But anyway, I fooled them. But what I'm getting at is the injuries that I incurred mercury settled there. So I still have problems in my hip because of the mercury that still settled in my bones. When you get hit real hard it knocks it loose in the cells and it'll settle wherever that injury is because that's the weak point. And right now I'm still getting the mercury out of my body, but I have mobility in my hip now where two years ago I mean to tell you it was, when I would go to stand up I had to stand absolutely still for at least two minutes before I could even start to move it hurt so bad. Okay, I realize my time's up. Thank you.

R.P. McMurphy

[Did not respond to his name being called.]

Rick Marshall

My name is Dr. Rick Marshall. I'm a naturopathic physician. I have an office in Port Angeles and in Sammamish. And I'm here to really talk about the difficulties that a physician has in diagnosing chronic mercury poisoning, because mercury is something that is vaporizing at a very slow rate on a day-to-day basis. As someone said earlier, it isn't something that is easily found in the blood or the urine, so we need methods that work a little more on the chronic nature. You do a good history and physical and you can get certain signs of that, but then there are other degenerative diseases that you have to differentiate with. And so what's been really helpful for physicians now is looking at how well minerals are absorbed in the body because mercury specifically will cause that kind of a problem. Mercury also damages the liver in a way that you can run a fractionated urinary porphyrin (?) test and there really aren't too many conditions that cause that and you can rule those out with other laboratory tests. Mercury damages the thyroid. It damages the ability of the adrenal glands to make PHEA and cortisone and cortisol. Mercury damages the ability in the body to generate estrogens, testosterone, progesterones. So a physician nowadays really has to look at all of these different parameters to get an idea on whether this patient has chronic mercury poisoning or a similar condition. But at least there are ways to do that. On the other hand, we wouldn't have to diagnose or treat chronic mercury poisoning if people weren't getting amalgams put in their mouth. And now with composites and other materials there's certainly a way to avoid this predicament. Thanks for hearing my comments.

Hulva Van Brackle

Good morning. Hulva Van Brackle. I live over on the Eastside at 12822 N.E. 136th Street in Kirkland. On April 1977, I was diagnosed with pyorrhea of the gums. My dentists, my standard dentist repaired the fillings in my teeth with amalgam, a standard treatment, and then treated the pyorrhea of the gums. In 1987, I was referred to a periodontist doctor and was under his care for treatment of pyorrhea of my gums. From 1987 to 1998, when I was informed that my upper teeth had to be removed because of disease. In 1999, I went to a naturopathic doctor and was diagnosed with mercury in my blood system and in my immune system. With this doctor I did chelation for two years to remove the heavy metals out of my body. After all of the heavy metals were removed out of my body I went back to my periodontist doctor for my yearly checkup. I work for the Boeing Company, I have good insurance, all of these professional physicians have kept my records and checked on me yearly. After my dental inspection the doctor was amazed that my periodontist disease had gone and my lower teeth, my lower jaw where I had pockets, up to 3 to 4 deep in pockets had gone back to 1's and 2's. In summary, the only thing I would like to say, I find it extremely wrong and terrible for the doctors who work on your teeth don't know about amalgam fillings. I as a patient have never been taught that it has been detrimental to my health and after just trying alternative medicine to get my body and my health taken care of, that there is no one out there watching these professionals. I realize that in a doctor's office his certificates say he's a practicing physician, but I really think it's money and greed and they're taking advantage of the population and I wish there was someone that could do something about it and at least let the public know what is detrimental to their health. Thank you.

Leo Bolles

I'm Leo Bolles, M.D., retired, but I've treated a number of patients who have the mercury toxicity in the past. And I'd just like to recite one case of a woman about 45 years old who was from Alaska and I'd been seeing her for about 7 years. And I had urged her to get rid of her amalgam fillings but she was too busy, she had a business up in Alaska, and so she never got around to it. So one morning about three years ago or four, she called me up in the morning and said, "I woke up this morning and I'm blind in one eye." So I encouraged her to come down to Seattle and have a complete work-up, which she did. She went to Virginia Mason. She saw a neurologist and she saw the eye doctor, and she had all the sophisticated tests that you do for that kind of problem. And they could not identify what the problem was. So then she came in to me and I looked at her amalgam silver mercury fillings again and she was blind on the right eye and she had about twice as many amalgam fillings on the right side of her jaw than she did on the left. So I said I felt pretty sure that it was due to the mercury. So she agreed to stay down in Seattle and have the amalgams replaced and she stayed down in Seattle for about six weeks and did that. And then afterwards we gave her a DMPS, which is a chelating agent which is specific for mercury, and you're only supposed to give it like once a month, and then we measured how much mercury came out afterwards. So we did that for about seven months and at the end of that time she had regained her vision back. So at the beginning her vision was 20/200, which is legally blind in the right eye. And at the end of the seven months her vision's back to 20/20 again. And so, and mercury does have affinity for the nervous tissue. And one other thing I'd like to say, I don't know if anybody mentioned this earlier, but prior to this, in the latter part of the 19th century, 1880, around in there, there was five dentists in New York who were arrested for using amalgam fillings. So it was illegal at that time, and they actually spent some time in jail. But since that time they formed American Dental

Association, and the main purpose of it was to get approval of amalgam fillings. That's my story.

Elizabeth Davisson

Hi, I'm Elizabeth Davisson. Some of you already heard some of my complaints about mercury, so I won't go into that. And there's an advantage of being last because I don't have to say all the things that have already been said, so I'm going to focus on some political realities. The American Dental Association claims there's no problem with mercury in fillings. The only possibility might be that a person is allergic to mercury and they say 1% might be allergic. It's much more than that, but that's not the main problem, it's the toxicity. I almost died in 19, end of 1990 I collapsed completely. I only survived because I had very expert medical and dental support and the support of my friends who brought me food and water and got me through a point and helped me get dressed and took me. And I was in total pain, non-functional. I still have trouble walking, but I'm able to walk now without taking Prednisone, which I had to take for almost six years. I was ridiculed by doctors. They tried to refer me to a psychiatrist. The doctor would say, "Well, I don't understand why you have all this problem. Your okay, but I don't believe you have mercury poisoning." So anyway, I've been through it and I still go through it. I have to be very careful. I can't eat fish or seafood. I can't go into a dentist's office after he has removed somebody else's amalgams. I did that once, I just stood in the door, I couldn't even go in the office. I was sick in bed for two days. I wanted to die. And that was only two or three years ago. It was awful. If I'd had a gun, I'd have shot myself. And I didn't realize the dentist who put the gold in my mouth and did a root canal with mercury in it did shoot himself, and I understand exactly how he felt. So my feeling, my question is what can this group do? What kind of action do you have? What authority do you have to do something when you can support the Bill that has survived committee and the State Legislature to set up a task force to study this issue? One of the problems is that it seems to be not kosher for doctors and dentists, some naturopaths and nutritionists, to really work together in their separate offices. It would be possible to set up a clinic where people could really work together to help people to, number one, we need diagnosis, number two, the dental work is very risky sometimes. Removing amalgams exposes you to more mercury. If you're very sick, you get sicker. Detoxification is not simple. If it's a difficult situation, it requires some testing, a lot of expertise and coordination with other services, with nutrition, for instance, and other kinds of treatment which are helpful. You know, Seattle could go on the map if we could set up that kind of a clinic. I've talked to a woman two or three years ago, okay, who had been in a clinic where all of this happened in one place. She said it was wonderful. I said, "Where is it?" It's not in the United States. The American Dental Association accredits the dental schools and I think the University of Washington, the dental school would be at risk.

Chair Edmonds thanked the citizens who had shared their comments with the Board. She invited Dr. Plough to commence with the Director's Report.

Director's Report

Dr. Plough stated that he had a couple of brief items to address before the briefing on dental amalgams. He directed the Board's attention to a folder placed at their desk which contained the following items: a letter from Mayor Nickels and County Executive to Governor Locke, a written legislative report, and several press releases regarding an op-ed, authored by Dr. Plough, regarding proposed public health funding cuts.

RE: letter to Governor Locke. Dr. Plough stated that the funding received by the State of Washington was \$20.4 million. He said he very much hoped that sufficient funding would be allocated to King County. Dr. Plough stated that he had spoken with Secretary Selecky of the State Health Department and he believed DOH's intent was allocate money to the local level. He stated that the State Department of Health awaited additional information from the federal government.

RE: legislative session. Dr. Plough said that he and his colleagues had spent considerable amount of time this session educating Legislators about important public health issues. He stated that one major issue for the Health Department was related to the Governor's proposed budget that would eliminate \$10 million dollars, former MVET funds, for the Department. He added that that amount represented nearly one-third of local, core public health funding. Dr. Plough stated that a funding cut of that magnitude would make it very difficult for them to maintain a baseline of public health services in the Department.

Dr. Plough stated that the Board packets included a brief synopsis of key bills staff were tracking. He specifically mentioned a bill that would provide allow preemption of local Boards of Health around restaurant inspections and food safety standards, an approach that the Department and the County did not support. Dr. Plough that another bill was related to the provision of donated food. He stated that the intent of the bill was to make it easier for private agencies to distribute donated food. He stated that local public health had indicated their qualified support for the bill, but wanted to assure adequate protection of the public's health. Dr. Plough also mentioned a third bill that focused on planning for public health emergencies arising from terrorist acts. The bill states the need for widespread and coordinated state planning efforts, however Dr. Plough stated that the bill did not sufficiently describe the lead responsibility that local public health had rightly assumed.

Chair Edmonds asked about the status of the bills.

Ms. Moran indicated that at that point in time, all bills referenced were still active.

Dr. Plough invited Board members to direct any further questions to Board staff.

Dr. Plough commenced with his introduction to the briefing on dental amalgams. He noted that the briefing was designed to be an informational briefing for the Board and that Mr. Pullen had proposed it a number of months ago. Dr. Plough stated that in terms of the Board's authority and ability to follow up on the subject matter, neither the Board of Health nor the Health Department had a regulatory responsibility in the State or County over the practice of dentistry. He stated that there was therefore no regulatory or other action planned in regards to the issue of dental amalgams. He stated that the sole focus of the briefing was to broaden the Board's understanding about the use of dental amalgams.

Dr. Plough invited the first panel to be seated.

Chair Edmonds acknowledged Board Member Conlin.

Board Member Conlin inquired about the amount of time planned for the briefing.

Chair Edmonds responded that there was approximately an hour and a half remaining in the Board meeting. She added that each panelist would have 10 minutes each and therefore it meant that she would only be able to entertain a limited number of questions from Board members. She requested that Board members hold their questions until after each panel had presented.

Board Member Conlin indicated he had a brief item he wished to raise in advance of his pending 12-noon departure.

Chair Edmonds yielded the floor to Board Member Conlin.

Board Member Conlin stated that his item was very relevant to the discussion. He stated that he was aware, as were they all, that mercury was a toxic material. He stated that the briefing was about one particular form of mercury. He stated that there was another form of mercury that he believed there was more agreement on and that was mercury in thermometers. He added that a number of states had already banned mercury thermometers and that the Washington Toxic Coalition had suggested that the Board of Health consider such a ban. Board Member Conlin stated that the matter was under review by the King County Prosecutor's Office and that they had agreed that the Board did have the authority to enact such a ban. Board Member Conlin stated that there were a number of stores who had already voluntarily stopped selling mercury thermometers and that hospitals had also voluntarily stopped using them in general. He stated that he wanted to introduce a proposed ban at the Board's next meeting with the Chair's consent and proceed with a discussion on specific legislation.

Chair Edmonds indicated that she had not yet had a chance to review the Board's work plan with Dr. Plough. She stated that she understood that a work plan had been established for the year that included a list of priorities. She stated that she could not promise to take up the issue of mercury thermometers at the next meeting, but that she would entertain the possibility for a future meeting.

Chair Edmonds acknowledged Board Member Pullen.

Board Member Pullen stated that he found it curious that the Board had the authority to ban mercury in glass containers in the form of thermometers, but not the authority to ban mercury in people's mouths.

Chair Edmonds acknowledged Board Member Lambert.

Board Member Lambert stated that she would be interested to know how much mercury was in a thermometer. She added that she was under the impression that mercury thermometers were almost eliminated in the State.

Chair Edmonds acknowledged Board Member Van Dusen.

Board Member Van Dusen stated that reflected in the legislative report was bill # 6533 related to the issue of thermometers and that by the time this matter came before the Board it could be a moot issue.

Chair Edmonds returned the floor to Dr. Plough. Dr. Plough stated that in terms of oral health in the Public Health Department, their general policy was primary prevention. He stated that the one area of aspect of public health practice in the last 50 years that had been a resounding success, was community fluoridation of water and the resulting dramatic reduction of caries in kids.

Chair Edmonds directed the audience to refrain from interrupting Dr. Plough and cautioned that further interruptions would result in people being removed from the chamber.

Dr. Plough continued by stating that the reduction of caries came about through a number of measures. He stated that those measures included community fluoridation of water supplies; better knowledge of the infectious nature of caries as a disease; and selected interventions done in the Health Department. He added that those interventions included attempts to limit the maternal-infant transmission of bacteria that caused caries and fluoride varnish and sealant programs done in the oral health program. Dr. Plough stated that the Department emphasized, in policy and practice, primary prevention of the carcinogenic process, primary prevention of the disease, which he said was the overall public health mandate for all that they pursued. He said that he wanted to be very clear that in their dental service practice where the opportunity cost was missed it was a clinical judgment by the individual provider regarding how they approached particular lesions when those preventive opportunity costs had been addressed.

Dr. Plough stated that with so many experts present, he had little expertise to offer, however he did want to clarify one additional point. He stated that they would not be discussing the hazardous nature of elemental mercury or methyl mercury in the food chain where there was clear toxicological and environmental evidence about its effects. He stated that the presentation was about dental amalgam and the health risk that may or may not be attendant to amalgam use in oral health practice. He added that those who were trained in science understood that scientific knowledge was an evolutionary process; it required a continual interpretation of data and a continual set of judgments. He stated that healthy debate about scientific evidence was always a very important part of the public process and that they would have such a debate that day.

Dr. Plough announced that the first panel would be presenting information that offered a perspective that there was not sufficient data to indicate whether or not dental amalgams posed a health hazard to the dental population. Dr. Plough introduced the four panelists.

Dr. Plough introduced Dr. Michael Martin, Associate Professor of Oral Medicine in dental public health and epidemiology at the University of Washington. He stated that Dr. Martin has been on the full-time faculty of the Department of Oral Medicine and that his work has been in the area of dental exposures to mercury. Dr. Plough stated that Dr. Martin was currently the principal investigator of a five-year grant from the National Institute of Dental and Cranial Facial Research entitled "The Epidemiology of Mercury Exposure in Dentistry."

Dr. Plough introduced Dr. Timothy DeRouen. Dr. Plough stated that Dr. DeRouen was a Professor of Biostatistics at the School of Public Health, Professor and Chairman of Dental Public Health Sciences, Associate Dean for Research in the School of Dentistry, and Director of the Health Science Wide Comprehensive Center for Oral Health Research at the University of Washington.

Dr. Plough introduced Dr. William Robertson. Dr. Plough announced that Dr. Robertson has been Professor of Pediatrics at the University of Washington School of Medicine since 1963. He said that since 1970, Dr. Robertson had been the Medical Director of the Washington Poison Control Center, formerly the Seattle Poison Control Center. Dr. Plough added that Dr. Robertson was certified in both pediatrics and medical toxicology.

Dr. Plough introduced Dr. Victor Barry. He announced that for over 25 years, Dr. Barry had maintained a private dental practice on First Hill in Seattle. Dr. Plough stated that Dr. Barry had been extensively involved in organized dentistry in the Seattle/King County Dental Society and was President of the Washington State Dental Association.

Dr. Plough invited Dr. Martin to commence his presentation. Dr. Plough reminded each panelist that they had ten minutes each.

Dr. Michael Martin

Dr. Martin thanked the Board for the opportunity to speak before the Board of Health. He directed the Board's attention to his first slide. The slide depicted a man sliding into home plate, one man calling the runner out while another indicated that the runner was safe. He stated that that slide was a classic picture from *Sports Illustrated*. He stated that he was showing that slide to make the point that there seemed to be sides to this particular issue. He stated that his personal point was as follows: he was a dentist but also a research career scientist. He stated that he did not have a side in this issue, he just wanted to know the truth about the particular question. He added that with any complex biological or health question it was very, very difficult when there was a substantial body of evidence to separate the wheat from the chaff and to get to the actual truth. He stated that he thought it would be useful to spend his brief time doing three things. He said he would: provide an overview of the history of amalgam use; describe the form of mercury that they would be talking about and the health effects; and then lastly, introduce them to the state-of-the-art methodology for evaluating the evidence.

Dr. Martin referenced remarks made by some of the previous speakers regarding the historical use of mercury amalgam. The following is Dr. Martin's brief synopsis of the history of mercury amalgam:

- First formulated around 1819 and brought to New York in the 1830's.
- Used by some of the dentist/surgeon/barbers in New York to place in teeth, however decay not removed prior to inserting the amalgam. Results less than successful.
- First so-called "amalgam wars" began as a result of the less than successful utilization of amalgam
- The "father of modern dentistry" at the time, G. D. Black, and others worked to standardize the formulation for amalgam.
- Early 1900's, a German chemist, Albert Stock, started the second round of amalgam wars by publishing data in which he showed that there appeared to be problems from fillings. He later recanted most of the claims and admitted that he had falsified the data.
- In 1932, the newly formed American Dental Association and the U.S. Bureau of Standards produced some specs for amalgam and it became 'grand fathered' in as a modern medical treatment as were some of the other modern medical treatments such as aspirin without particular studies undertaken.

Dr. Michael Martin stated that the form of mercury under discussion was elemental mercury. He added that there were two other forms - organic or inorganic but that the one they were dealing with in dentistry was elemental mercury, which he added was the pure metal. He showed a slide that depicted the bottles in which mercury used to be supplied to the dental profession. He said the mercury was mixed in the office at that time. He stated that it now came pre-encapsulated and was not really used in that way any more. He added that the capsules did contain about 50% mercury and about 50% silver with trace portions of some other metals depending on the formulation.

Dr. Martin stated that what they were worried about was mercury vapor. He indicated that what they did know was that a great deal of mercury vapor that got into the lungs was absorbed into the body. He added that the problem in offices was under normal use, as we know, it comes out of old amalgams, from accidental spills in the office, and up until 10 years

or so ago, it was generally believed that mercury from dental fillings was not released. He stated that they knew now that it did in fact come out of mercury amalgams.

He said his next slide depicted a sort of thermometer of health effects or scale. Dr. Martin stated that what was known was that all of those effects, some of which had been talked about before, were well known. He said that the question was, "at what levels did they see those things?" He said that to date that at the lowest level of urinary mercury levels, about 36 micrograms per liter, they could see some pre-clinical changes in behavior. He added that that result was from a study that he had co-authored. He noted that his study had been included in the Board packet by another presenter. He stated that it was important to know that that study had a very small "n" and was an exploratory study that meant that you really could not make too much out of it. He added that they had concluded that the results would guide their future research but they were equivocal about the results as a matter of fact. Dr. Martin stated that it was important to talk about the importance of looking at the quality of the evidence that existed and that it was important to understand that there was peer review. He said that he had heard the term "peer review" used a lot by previous speakers. He added that there was "peer review" and then there was "peer review" and there was "evidence" and then there was "evidence". To make his point, he referenced a paper he had seen - the results of radiation therapy and carcinoma of the base of the tongue--- the Curie Institute experience with about 166 cases. He stated that that study had been in a peer reviewed journal. He referenced his next slide that he indicated illustrated the problem with evaluating the evidence. Dr. Martin stated that the current evidence was equivocal at best, like many areas of inquiry involving biological and health questions. He said that they still did not know what the daily dose from amalgam was. He added that they knew there was some, but did not know what it was. He referenced the chart on the slide and stated that selected and well accepted studies that have been done, placed the amount anywhere from 1.24 to 27 micrograms per day.

Unidentified party interjected and asked if the figure quoted by Dr. Martin was from amalgam. Dr. Martin responded that that was one of the problems. He added that there was no standardization that had been done. He said that there was a great deal to be learned.

Dr. Martin described another example at the University of Calgary wherein researchers felt that they had found evidence that there was an association with Alzheimer's. He stated that researchers at the University of Kentucky, using a case control methodology, found no evidence of an association. He said that some studies found "A" and some studies found "B". He stated that the current state-of-the-art, in reviewing and evaluating evidence was called "Evidence Based Analysis." He added that the highest level of evidence that you would want to base decisions on was 1A and 1B, and the lowest was 5. He explained that expert opinion without explicit critical appraisal, meaning peer review, up to case series, was where one found published reports of patient A and patient B who both had something done and then they got better. He described case control studies and then the systematic reviews of those case control studies. He added that case controlled studies were where one found people that had a certain disease and then you looked back in time to find out what exposures they had had, and you compared them to people who didn't have that particular problem. He described outcome studies, where a cross sectional study looked at a bunch of people, for example all the people in Seattle, and one determined how many of them had a certain problem and then how many of them had other exposures. He described cohort studies where one got a group of individuals and followed them through time and then did a systematic review of multiple cohorts' studies. He described what he called the gold standard -randomized clinical trials- and then the level of evidence above that which would be a systematic review of multiple randomized controlled trials. He stated that those levels of evidence allowed them to make some kind of sense of all of the available evidence and

make informed decisions. Dr. Martin noted that in the briefing book provided to Board members, none of the studies mentioned made it above level 2C, with the exception of the study by Stedman and Grahams. He added that their study made it up to 2B and only by his using a generous interpretation of what they were. He added that there were no level 1 studies that had ever been done on this subject area.

Dr. Martin said that the last point he wanted to make was related to composite. He stated that everyone talked about moving to composite. He said there were at least two chemicals in composite - BIS-GMA and TEGDMA [chemical name acronyms for types of methacrylates] - which had a long chemical name, both of which were known to have harmful biological effects. He added that BIS-GMA was estrogenic. He noted that they might have been reading in the scientific literature about the estrogenic effects seen and the possible problems. He said that TEGDMA was even more important in that it was omnipresent in the composites and was mutagenic. He added that if you really wanted problems one should introduce a mutagen.

Chair Edmonds invited Dr. DeRouen to commence with his presentation.

Dr. Tim DeRouen

Dr. DeRouen indicated that he would pick up where Dr. Martin left off. He stated that he wanted to tell the board about a study that they were undertaking that was being done at the level of 1B on Dr. Martin's described hierarchy. He stated that they were doing a randomized clinical trial.

Dr. DeRouen stated that in 1995, the National Institute of Dental and Cranial Facial Research proposed that there be at least one clinical trial of children because of the concern that low level mercury exposure from amalgam restorations could have long-term health effects. He said that they applied for, and were awarded a grant to conduct one of the clinical trials. He stated that the trial they were doing was called the Casa Pia study of the health effects of dental amalgams in children. He added that the study was being conducted in conjunction with the University of Lisbon of which they were affiliated with and had worked with in the past. Dr. DeRouen said that when they put the trial together they had to construct an interdisciplinary team of experts from a variety of areas. He stated that he was the principal investigator, Dr. Martin was the Project Director, and that they had individuals with backgrounds in neurobehavioral and neurology, psychometry, dentistry, renal experts and biostatisticians from the University of Washington. He stated that they were conducting the clinical part of the study in Lisbon and there they had a large team that included professionals with backgrounds in dentistry, psychiatry, behavioral sciences, and a group of dentists who were doing the treatment. He stated that the reason they were undertaking the study in Lisbon was because the study population - students in the Casa Pia schools- was one they had worked with before. In addition to the familiarity with the population, he said that the advantages of doing the study there, was also that the school had an extensive network of social contact with the children and that that would help them enhance long term tracking and follow up. He added that there had been a relationship between the University of Lisbon and the school and that they knew we could get the cooperation and enthusiasm of the school administrators that would also facilitate study logistics. Dr. DeRouen also noted that the students also lacked prior exposure to dental amalgam and had an enormous need for dental restorative treatment. He stated that the students had a lot of caries, very little access to care and had had low exposure to other sources of mercury. Dr. DeRouen indicated that they felt that those factors provided an opportunity to maximize group differences in amalgam exposure and see if it was possible to demonstrate any effects due to amalgams.

Dr. DeRouen said the primary end points they were looking at were neurobehavioral and neurological. He stated that in the neurobehavioral area they were doing a whole battery of neurobehavioral tests that were combined into three general domains that they thought might be affected by low level mercury exposure - memory, attention concentration and visual or motor domains. He stated that in the neurological area they were looking at nerve conduction velocities. He said that they had secondary end points they were looking at as well, however they had not designed the study around them, and they included IQ, neurological exams, urinary glutathione transference, urinary porphyrins and urinary albumin. Dr. DeRouen noted that the study design was a randomized clinical trial wherein half the kids were randomized to treatment using amalgam and any other material as appropriate in the standard of care. He added that they were not using amalgam for everything, just for large posterior restorations where one needed the strength of an amalgam. He stated that the other half, were randomized to treatment using entirely alternative materials, posterior composites instead of the amalgams. Dr. DeRouen stated that they were monitoring urinary mercury levels on an annual basis; re-examining and retesting the students annually and would be following them for seven years after treatment. Dr. DeRouen stated that the hypothesis was that mercury exposure from amalgams caused effects in one or more of the end points that they were monitoring. He said the question posed was "do they see evidence over time that the two groups would diverge in those end points?"

Dr. DeRouen explained that they enrolled children who were 8 to 10 years old at the beginning of the study, which was in 1997. Dr. DeRouen described the eligibility criteria for participation in the study as follows. He said that in order to be eligible the student must have: at least one carious lesion in a permanent tooth, no prior amalgam exposure, have an IQ high enough to be able to conduct the test, not have a high lead levels which might interfere with what they were trying to test, nor baseline urinary mercury levels too high [10 micrograms per liter of urinary mercury], and no other existing interfering health conditions. He added that they standardized the materials that would be used in treatment because they wanted everything to be standard so as to assure there was no excess variation. He stated that they chose dental materials that were used both in Portugal and in the U.S. so they could make inferences to the U.S. He stated that the amalgam selected was dispersaloy and they standardized the other materials that would be used in treatment as well.

Dr. DeRouen stated that with the exposure measures they were using they knew when each amalgam surface restoration was placed and we could track how many months of exposure each child had had for that amalgam surface, so they could add those up. He stated that they had urinary mercury determinations at baseline and at post-treatment follow-up so that they could monitor those as well. He stated that the statistical analysis was designed so that the study provided for annual testing so that the study could be halted early if significant adverse effects were detected. He said that that was important because they were testing every year to determine whether they should proceed. He stated that the study was designed to test primarily for adverse effects of amalgam but it also allowed them to test for possible adverse effects of composite fillings. He added that although the study was not specifically designed to test for composites however, if they detected something in any of the endpoints that was negative for composites, they could legitimately test for them.

Dr. DeRouen referenced a slide that described how they enrolled the kids. He stated that their goal was 450 kids; they screened over 850 students before they enrolled a total of 507.

Dr. DeRouen stated that they were three and a half years into the follow-up period. He summarized the study to date:

- The study still had about 92% of the kids initially enrolled as participants in the study, which was considered a very high rate for any kind of longitudinal study.
- Over the three-year period the kids averaged about six teeth with amalgam restorations.
- Regarding urinary mercury levels in the kids: Before any amalgam exposure the baseline urinary mercury levels were at the level of about 1.5 to 1.4 micrograms per liter of urinary mercury indicating a background mercury level in kids who had had no exposure to amalgam. He pointed out, as was depicted in his chart, that the average urinary mercury level went up slightly in the amalgam group as opposed to the composite group. He added that they had expected those findings. The amount went up to 3.2 micrograms per liter as opposed to 1.8 in the composite group. He stated that there was an increase in urinary mercury but the level - 3.2 - was still within range of what one would see as sort of normal variation if one did background surveys of what it would be in populations not exposed to any overt sources of mercury.

Dr. DeRouen summarized his remarks. He stated that they had a NIH funded randomized clinical trial. He stated that by the time they were done, NIDCR will have spent about \$11 million. He stated that they had 507 children enrolled and had concluded three and a half years of follow-up. He said that the background urinary mercury levels remained stable in the composite group and had increased slightly in the amalgam group. He stated that the levels had remained in the range of background levels, but the annual statistical tests had not found cause to stop the study prematurely because of any significant adverse health effects. He said that they were not allowed to release the results of the trial in the middle of the study because things might change, however he added that they did test on an annual basis and after three years they did not have reason to stop the study. The implication of that was that they had not seen sufficient evidence of any adverse effects that would lead to the study being terminated. He stated that they were mid way through their study. He noted that there was a similar study underway on the East Coast that would conclude at the same time as theirs. At that time, he indicated they would have some valid scientific evidence to make judgments.

Dr. William Robertson

Dr. Robertson thanked the Board for the opportunity to speak on the issue of dental amalgam. He stated that the Poison Center in the State of Washington and others across the country tried to help people cope with the expanded concerns about chemicals. He reminded the Board that everyone was nothing but a bag of chemicals. He said that when he first entered the profession there were 1.2 million entities known to exist since the origins of civilization. He said that last year they passed the 40 million mark. He said that with analytical chemistry they could now measure parts per quadrillion. He noted that, as Dr. DeRouen had mentioned, everyone, whether they had dental amalgam or not had mercury in their body. He added that everyone had lead in his or her bodies. He stated that if there had been no lead mined since the origins of civilization, they would still have lead in their bodies; still have arsenic in their bodies because it was all around in the environment. He said he made those statements because in his field they now dealt with the attempts to reverse it. He said that in the field of toxicology the dose made the poison. He cited by way of example the current issue of Time magazine. He said that everyone knew that bioterrorists might some day threaten the population with botulism, the worst known toxin. However, he said if you read Time magazine you would learn that there are 92 different medical reasons for taking that toxin and sticking it into a person - eye muscles, neck muscles, wrinkled forehead, and to rid people of migraine headaches associated with those wrinkles. He said that botulism was a bad chemical but used for good purposes.

Dr. Robertson directed the Board's attention to his next slide, which he explained, was in backwards. He said that one did not need to be a rocket scientist to know that there was something wrong with the chest x-ray shown on the slide. He described the x-ray as having come from a 16-year old Caribbean native who had moved to Boston who was interested in prizefighting. Dr. Robertson stated that this young man had probably had a fight one evening, went into the ring and after the ninth round received a cut over his eye and had a TKO against him. He related that after nine rounds of fighting the young man put a bandage on the cut and found that it didn't work. Dr. Robertson stated that the next evening, 24 hours later, the young man went to an emergency department, and asked them to sew it up, to which the ER personnel agreed. While he was being sewn up, the young man told the doctor that just before he went into the ring he injected himself intravenously with 200 micrograms - with 15 grams - half an ounce of liquid mercury or quicksilver. Dr. Robertson related that the attending doctor dropped his instruments on the floor, ushered the young man up to take an x-ray and saw that the mercury was all over the young man's lungs. Dr. Robertson said that the mercury would be all over his lungs for 40 years. Dr. Robertson stated that the young man had some temporary respiratory test abnormalities but still was able to fight for nine rounds. He said the young man had gone home from the hospital and that follow-up after six months revealed that he was doing well.

Dr. Robertson indicated that his next slide was a x-ray of a dental assistant who took a third of an ounce of quicksilver and stuck it in her arm in an attempt to commit suicide. He said it did not work. He stated that she had a very, very temporary change in her lung function and then went home. Two years later she had no observable symptoms, side effects or abnormal laboratory tests. He stated again that the dose made the poison. He added that those examples included some awfully big doses and that they needed to ask the same question that Dr. Martin had posed - "what is the evidence?" Dr. Robertson stated that they had dealt with the fact and recognition that with table salt and drinking water, drinking water kills; kills more than 15 people a year who overdose on drinking water.

Dr. Robertson said that they have been involved and would continue to be involved about the issue of thermometers. He said that he did not have any, nor did he receive any royalties from the thermometer manufacturers. He stated that they had had three kids helicoptered to Children's Hospital because they had broken a thermometer in their mouth. He stated that the risk of riding in the helicopter was 10,000 to 1 million times riskier than the little bit of mercury that got into their mouths.

Dr. Robertson indicated that the same could be said about methyl mercury and mercury in fish. He said that they should be a little skeptical about that data. He said that initially they would adopt a cautionary principle and want to be careful, but later on one didn't have to be careful. He said that while the data was gathered such as was described, then they could make appropriate judgments.

Dr. Robertson wondered if people were aware of what was the source of mercury in the environment. He responded that estimates indicated that approximately 50% came from forest fires and questioned whether or not we would want to stop all the forest fires.

Dr. Robertson concluded by stating that over last 15 to 30 years, there had been a lot of action in the courts dealing with asbestos, with lead, with pesticides, and breast implants. He stated that in 1993 the Supreme Court said that henceforth they were not going to permit junk science into the courts. He said the Supreme Court wanted evidence-based science. He said that that position had now shifted to other courts. He stated that as far as he knew there had been no successful dental amalgam cases in the court system. He stated that he

doubted very seriously there would be any in the future because the overwhelming evidence revealed that one had nothing to worry about.

Dr. Victor Barry

Dr. Barry stated that he was in practice in general dentistry up on First Hill and had been for 25 years. He stated that he was not a scientist; he was a health care provider. He said that he was before the Board to tell them that amalgam was safe. He said that that was not his opinion, that that was a scientific fact. He said he could base his own opinion on his own personal story. He said that after 25 years of practice he had never seen even one patient who had had an adverse reaction to dental amalgam. He said that he had not based his comments to the Board on his opinion but that his comments were based on sound science. He added that that all he could do, as a health care provider, licensed by the State, was to provide proven accepted treatments to his patients based on sound science.

Dr. Barry said that when he first looked at the amalgam issue as a practitioner he had to consider his scope of practice. He stated that the Dental Quality Assurance Commission had lifted the licenses of dentists who had removed amalgams for patients based on general health concerns because they were practicing medicine without a license. He said that sound science dictates that one should not confuse mercury, with amalgam. He stated that his concern about mercury was about batteries. He stated that batteries were recycled and thrown in landfills. He said there was a lot of elemental mercury in the environment that should be regulated. He said that once amalgams were formed one had a chemical combination of those metals with mercury that rendered an inert and inactive biological substance. Dr. Barry stated that every major national and international health organization had endorsed the safety of amalgam. He specifically named the following organizations: American Dental Association, the American Medical Association, the World Health Organization, the World Dental Federation, the U.S. Public Health Service, the FDA, the National Institutes of Health, the National Institute of Dental and Cranial Facial Research, the CDC in Atlanta, the European Commission, the National Board of Health in Sweden, the New Zealand Ministry of Health, and Health Canada. Dr. Barry said he would love to see the King County Board of Health add their names to that list. He posed the rhetorical question - "How did they come up with this recommendation? " He responded that those scientists peer reviewed valid scientific studies; some of which were as basic as studying cloistered nuns who lived in the same environment and had the same diet. He stated that in that particular study those with amalgams and those without amalgams had the same amount of mercury in their bloodstream. He added that there had been similar studies done on twins that showed the same results.

Dr. Barry stated that he believed the common sense rule should also apply. He said that after 150 years of dental amalgam use, if there had been an epidemiological problem, they would have discovered it by now. He added that that was a rule that dentists had to rely on.

Dr. Barry stated that individuals had a right to their opinion. He said that a dentist might want to design his or her office based on the principles of Feng Shui or they might want to schedule their day based on astrology or choose to offer silver fillings or not. However, he said that when it came to treatment they were morally, legally and ethically obligated to provide treatment based on sound science. He added that he thought that should also be true for the Board of Health.

Dr. Barry directed the Board's attention to a handout he had provided for the briefing book. He read the following sentence from the document entitled "Consumer Update on Dental Amalgams" from February '02. He noted that the FDA had released the document in recent

weeks. He read the following statement from this article: "FDA and other organizations of the U.S. Public Health Service continue to investigate the safety of amalgams used in dental restorations. However, no valid scientific evidence has ever shown that amalgams cause harm to patients with dental restorations." He stated that the last sentence was also significant. "As an important part of this plan, the U.S. Public Health Service will continue working with the dental profession to bring about changes in the delivery of oral health care based on valid, scientific research."

Dr. Barry indicated that he was shocked when he saw the Metropolitan King County press release announcing the Board hearing. He said he believed there were some irresponsible statements included in the press release that they needed to revisit and reconsider at their next meeting. He referenced Paragraph 3 in the press release which he quoted the following: "A growing number of dentists and health officials say that mercury vapors released and ingested into the system, etc., etc. cause cancer, immune disorders and multiple sclerosis and Alzheimer's." Dr. Barry stated that he believed that to have this type of statement released before the Board hearing on the issue unnecessarily preyed on the fears of patients and the public. He said that the head of the Multiple Sclerosis Society said a few years back that it was a cruel hoax to hold out hope for multiple sclerosis patients; to put them through expensive and unnecessary dentistry in the hopes that that was going to help them with multiple sclerosis. He added that multiple sclerosis had been around far longer than amalgam had. He also added that preying on people's fears was also shown when the anti-amalgam guru, featured on ABC's 20/20 show, lost his license in Colorado as a result of luring patients into his practice and recommending expensive dentistry which had no effect whatsoever on their general health outcomes.

Dr. Barry stated that he would love to see the Board of Health change the statement in the last paragraph where Dr. Plough was reported to have said "that the Department will not support the use of dental amalgams in the mouths of children." Dr. Barry said that he understood that Dr. Plough had never made that statement. He advocated that in the future the Board should put out press releases that accurately reflected scientific evidence.

Dr. Barry asked the Board if they would have convened a panel discussion if a Board member had suggested a ban on sodium chloride. He said he doubted they would have. He stated that someone could say sodium chloride contained poisonous chlorine gas and unstable sodium metal, which was used in Drano. He stated his doubts that the Board would have assembled a panel to discover that sodium chloride was simply table salt and has been studied enough. He said he thought it would be unfair to the public for the Board to take any stand other than endorsing what every other national and international public health organization had already said because it was simply the truth.

Dr. Barry stated that in conclusion he wanted to emphasize that the member dentists of the Washington State Dental Association and the American Dental Association had one goal and that was to provide the best and safest oral health care possible. Dr. Barry stated that the ADA had never held a patent on amalgam and never had a gag rule. He stated that it was easy to make those type of statements than to look up the truth. He stated that as practicing dentists they shared knowledge, they told their patients the truth, and they promoted prevention. He stated that they based all of their treatment decisions on sound science. He added that the best definition of science he had ever encountered was in a Seattle Times editorial. He quoted the first sentence. "Science involves searching endlessly, vigorously and incrementally for the truth. Junk science involves sifting selectively through statistics to bolster preconceived notions." Dr. Barry concluded by asking the Board to carefully consider that definition and to arrive at a decision that determined what panel came down on the side of science and what panel came down on the side of junk science.

Chair Edmonds thanked members of the first panel. She invited questions from the Board.

Chair Edmonds acknowledged Board Member Pullen.

Board Member Pullen stated that he thought he had heard two panel discussions within the one panel that was seated. He stated that the first two panelists, Drs. Martin and DeRouen presented some actual scientific evidence that he found quite interesting and seemed to be in contradiction to what Dr. Barry had said. Board Member Pullen said for example, that Drs. Martin and DeRouen's testimony stated that up until 10 years ago it was thought that mercury vapor was not released from amalgams, but that in the last 10 years their testimony indicated that it was released. Board Member Pullen stated that Dr. Barry had said that amalgams were rendered safe and inert. He stated that they were not inert if mercury vapor was being released as was discovered within the last 10 years. Board Member Pullen referenced the information provided about the research underway in Lisbon. He said that admittedly the research findings were preliminary and the method of measurement had a certain error associated with it, however he stated that the urinary levels in children had increased from an average of 1.8 micrograms in the composite group to 3.2 indicating that mercury, as best as could be determined from the preliminary data, was going into their bodies. He thought that finding contradicted what they had heard from Dr. Barry ---that amalgams were rendered safe and inert. He said he would be interested in a response from Dr. Martin and Dr. DeRouen.

Dr. Martin responded that Board Member Pullen was talking about two very different things - safe was one thing and inert was something else. Dr. Martin said the jury was still out on the issue of safety. He said in a few years they would have at least some level 1 evidence. He added that he would not presume to speak for Dr. Barry.

Board Member Pullen stated that he would look forward to getting their report on their research when it was concluded.

Dr. Martin stated that he thought it was very important to remember that they knew more about mercury amalgam currently than they knew about composites.

Chair Edmonds acknowledged Dr. Robertson.

Dr. Robertson stated that they were now in a position to measure mercury vapor in detectable levels. He said that simply didn't exist before 1985/86. He said that they didn't think it was there because they couldn't measure it, now they could. He added that they could now measure how much was in his eyeball. He said it was simply a reflection in the progress they had made in analytical chemistry.

Chair Edmonds acknowledged Board Member Van Dusen.

Board Member Van Dusen commented that the question that came to her mind was a question regarding the risks of the alternatives to amalgams. She said that she had heard that they really didn't know the risk of using composites. She felt additional information was needed about the alternatives. She said the other question that came to mind was related to the strength of mercury amalgams that was needed. She asked if there were situations where effective alternatives to mercury amalgams simply didn't exist.

Dr. Barry responded that amalgam on posterior teeth was stronger than composite. He said that there were other substances -gold or full crowns -which were indirect restorations that cost hundreds of dollars. He said that raised an interesting point. He stated that any decision about attempting to ban amalgam had to take into account the effect on cost. He stated that back in the '90s there had been a conservative estimate that indicated that in order to replace every silver filling in every person in this country would cost \$600 billion dollars. He restated his earlier point that one needed to look at the science. He reminded the Board that all those organizations he had named had based their decision that amalgam was safe, on hundreds and hundreds of studies over the past 150 years. He added that if something changed in the future, the American Dental Association would be the first ones to report it.

Chair Edmonds acknowledged Board Member Pizzorno.

Board Member Pizzorno asked Dr. DeRouen if in the studies referenced he had measured the porphyrins on those studies thus far, and if so what were the effects they had observed.

Dr. DeRouen responded that they were measuring porphyrins as a secondary end point and that they hadn't really analyzed those thoroughly to see. He added that they were more of a marker of exposure and they expected to see some differences. He said that when they first looked they hadn't observed as much difference as they had expected. He added that it was probably not going to prove to be a very good secondary end point.

Chair Edmonds thanked the members of the first panel. She invited Dr. Plough to introduce the members of the second panel.

Dr. Plough invited members of the second panel to take their seats in the front of the chamber. Dr. Plough introduced Mr. John Moore. He reminded the Board that Mr. Moore had provided public testimony at the June 2001 Board meeting. Dr. Plough stated that Mr. Moore had studied electrical engineering at the University of Washington and been an industrial engineer for 15 years. He stated that Mr. Moore had been engaged in the dental health research for the past 14½ years and had been acting as a consultant working nationwide on the issue of mercury.

Dr. Plough introduced Dr. Paul Rubin. Dr. Plough stated that Dr. Rubin was a graduate of the University of Washington School of Dentistry and that he was currently in private practice in Seattle. He stated that Dr. Rubin had been an active member for many years of the International Academy of Oral Medicine and Toxicology where he was currently Executive Vice President as well as Co-Chair of its Environmental Committee.

Dr. Plough introduced Dr. Paul Genung. Dr. Plough stated that Dr. Genung received his Bachelor's Degree in Zoology and Dental Degree from the University of Washington. He stated that Dr. Genung had been in practice for 37 years and had practiced what Dr. Genung referred to as "health conscious dentistry" for the last 16 years. Dr. Plough stated that Dr. Genung had appeared on numerous television programs about the use of mercury in dentistry over the past 15 years..

Dr. Plough introduced the final panelist. Dr. Andrew Cutler. Dr. Plough stated that Dr. Cutler had received his Ph.D. in Chemistry from Princeton University. He stated that Dr. Cutler was a licensed chemical engineer in Colorado and California, and a registered patient agent, and had written the book "Amalgam Illness Diagnosis and Treatment."

Dr. Plough invited Mr. Moore to commence his presentation.

Mr. John Moore

Mr. Moore thanked the panel and the Board of Health for inviting him to participate in the panel discussion. Mr. Moore stated that he almost died 14 years ago at the age of 52. He stated that he had found that it was mercury poisoning that was killing him. He said he wound up basically detoxing for mercury and then took his fillings out and as a result got better. He said he had been lying in bed, had completely lost his memory, and he wasn't real thrilled with that at the age of 52. He stated since then he had tried to find out what had happened to him, why he had become sick. He stated that he began to study the mercury issue and the whole dental issue and started teaching classes.

He mentioned that he had provided the Board with a class schedule that was a sampling of some of the things that he felt he needed to share with the public so that they could have an idea of what he had gone through so they didn't have to go through the very same thing.

Mr. Moore referenced another article he had provided related to autism. He referred the Board to page 2 of the article where he pointed out they would find a listing of mercury poisoning symptoms. He stated that those symptoms were true for anybody that had mercury poisoning. Mr. Moore said that that absolutely showed you exactly what mercury poisoning did in the human body. He said that he believed the article was an excellent one and he wanted to provide it to the Board so that they could see if any of those things might apply to anybody that they might know.

Mr. Moore mentioned that there had been some discussion about the University of Calgary. He indicated that the next handout was the University of Calgary's press release of March 26, 2001. He stated that it referred to a peer reviewed study. He pointed out that what was depicted in green was essentially the myelin sheathing on the nerves. He pointed out that depicted on the right of the overhead slide was a picture absent the myelin sheathing ---a before and after scenario. He stated that their findings were published in the Neuro Report. He stated that he had copies of the front page of the report and could make copies available to everyone. He also noted that they would get a chance to view this further in a videotape he had brought for the Board's viewing.

Mr. Moore stated that the next piece of information in their packets was the Mercury Awareness Team's sheet. He said a little boy was pictured in front of heading that read, "The more you know, the less you will want mercury in the mouths of our children." Mr. Moore stated that for a few pennies more, children did not need to be exposed to mercury and that was certainly a fairly true statement, although he added some people were using very high prices on the composites. He said that he had been told by reputable sources from the Washington Dental Association that it cost about \$20 per filling.

Mr. Moore directed the Board's attention to the next article that depicted body tissue discoloration. He stated that if you looked it up on many of the MSDS sheets that were available today, you would find that it would tell about the body tissue discoloration, where the mercury actually deposited itself on the physical body.

Mr. Moore indicated that the next article showed the original amalgam mixture that was 52% mercury. He stated that it was 30% silver, 4% copper, 14% tin and zinc. He stated that there were various manufacturers' makeup but in general that was it. He stated that that lasted from 1819 or 1834, whatever the date was that they started using amalgam in this country until about 1974 when it was changed. Mr. Moore stated that the Hunt brothers were playing with the price of silver and the silver and the copper were reversed. He said this newer

formation released the mercury 50 times faster than the original filling material as well as the copper.

Mr. Moore indicated that the next article documented 1,404 citations on mercury and its damage in the human body and in the animals. He directed the Board's attention to a copy of an MSDS sheet regarding Dentist Supply Caulk. He said that he had taken that information showing the health symptoms and placed it over the entire study. He stated that that was information provided by the manufacturer. He directed them to a second sheet that described contraindications that Dentist Supply Caulk put in '97.

Mr. Moore directed the Board to the remaining documents he had provided for insertion in the Board briefing book. He described one study involving sheep where researchers used radioactive mercury as a trace element in the filling materials so that they could track it accurately and without any other inference and a second study using a female sheep where the documented how the substance had crossed the placental membrane.

Mr. Moore indicated that he wished to conclude his presentation with a video. However Chair Edmonds stated that Mr. Moore had less than 1 minute remaining in his allotted time. The next panelist was invited to begin his presentation.

Dr. Paul Rubin

Dr. Rubin stated that it was his privilege and an honor to be able to address the Board and he thanked them for taking time to hear that important information. Dr. Rubin stated that he wanted to keep his comments focused on some very basic and simple questions, specifically, "Is mercury toxic? Does mercury escape from amalgam fillings, and if so, how much? Where does it go? And can it cause any harm?" He asked the rhetorical question, "is there any evidence that mercury levels as answered in question #3 are capable of causing any harm?". He responded that he didn't think they had to ask whether there was proof that amalgam mercury caused disease X or disease Y or disease Z. He said it was proper and sufficient to ask could it cause any physiological harm. Dr. Rubin said that his first question, regarding whether mercury was a toxin did not even need to be discussed because they had all agreed to that. He said that as to the remaining questions, prior to about 1984 there was not enough scientific research to provide clear answers. He said that since that time there had been a steady stream of well-documented research worldwide providing some evidence for these answers. He indicated that he wanted to show the Board a small sampling of that evidence.

Dr. Rubin posed the question, "Does mercury escape from amalgam in the mouth?" He said that that question had been coming up for many decades. He said that in the mid-1980's some interesting indirect evidence started to appear. He stated that Eggelston and Nylander looked at autopsy brain tissue and found a direct correlation between levels of mercury in the brain and presence of amalgam fillings in the mouth. He said that in their study they said this was indirect evidence suggesting that mercury from dental amalgam fillings might contribute to the body burden of mercury in the brain.

Dr. Rubin referenced another study by Nylander in Sweden in 1987. He read the following quote: "It is concluded that the cause of the association between amalgam load and accumulation of mercury in tissues is the release of mercury vapor from amalgam fillings." He posed the following question: "Why was mercury vapors specifically cited?" He responded that about that time there began to appear some clear direct evidence of mercury escaping. He stated that several studies had used a sensitive instrument like the one he showed to the Board. He stated that his device was called a Jerome Mercury Vapor

Analyzer capable of taking in a sample of air and accurately detecting very low levels of mercury vapor. Dr. Rubin said it was a simply matter to have someone open their mouth, sample the air inside the mouth and look for mercury. He stated that it was a fact, almost universally that any patient tested like that with amalgam fillings in the mouth showed some measurable amount of mercury vapor. He added that if there were no amalgam fillings present there would be no mercury detected. He stated that if the patient chewed on gum for about 10 minutes, the levels rose dramatically several fold and stayed at that level for a couple of hours. Dr. Rubin said that from that kind of study done under more careful conditions, researchers Vimy and Lorscheider, part of the University of Calgary Medical Center team that had been referred to earlier, concluded that intra oral air was a reliable physiological indicator of mercury released from dental amalgam that might reflect a major source of chronic mercury exposure.

Dr. Rubin stated that mercury did escape from amalgams in the mouth. As to how much, he indicated that it was a small amount. He added that a panel of worldwide toxicity experts had been convened by the World Health Organization in 1991 to address the question of human exposure to mercury from various sources. From the data calculated by those scientists he said that there was a range listed on dental amalgam, but it was concluded that the leading source of exposure of humans to mercury was amalgam fillings, greater than fish, food, air, and water combined. He said it was of interest that the U.S. Environmental Protection Agency said that the safety limit of daily exposure to mercury was 10 micrograms a day. He said that from these data it was clear that many individuals exceeded that limit simply by having amalgam fillings in their mouth.

Dr. Rubin posed the following question: "So where does it go?" Dr. Rubin referenced Mr. Moore's references to some of the very elegantly designed animal studies that showed that mercury from amalgam fillings traveled through the body into various tissues. Dr. Rubin stated that he wanted to focus on one very disturbing aspect of those studies. He said that it had been shown in animal and in human studies that mercury from amalgam fillings in a mother passed through the placenta into the fetal blood supply and accumulated in fetal tissues and furthermore, it accumulated in mother's milk, thus exposing the newborn. Dr. Rubin stated that the University of Calgary team in 1997, reporting in a respected peer reviewed scientific journal, said that mercury originating from maternal amalgam tooth fillings transferred across the placenta to the fetus across the mammary gland into milk ingested by the newborn and ultimately into neonatal body tissues. Dr. Rubin said that those findings suggested that placement and removal of silver tooth fillings in pregnant and lactating humans would subject the fetus and neonate to unnecessary risk of mercury exposure.

Dr. Rubin referenced a study by Drasch in Germany in 1998 that looked at mercury in human breast milk. He said that the mercury in breast milk samples correlated positively with the number of maternal teeth with dental amalgam. Dr. Rubin added that the higher mercury burden of infants' tissues from mothers with dental amalgam as reported previously must be explained (1) by a prenatal transfer of mercury from the mother's fillings through the placenta to the fetus and (2) an additional burden via breast milk. Dr. Rubin referenced a study by Oskarsson in the Archives of Environmental Health, where it was reported that there was an efficient transfer of inorganic mercury from blood to milk and that in this population mercury from amalgam fillings was the main source of mercury in milk. Dr. Rubin said that they had concluded that efforts should be made to decrease mercury burden in fertile women.

Dr. Rubin referenced a study by Grandjean that looked at low level exposure in children to methyl mercury. Dr. Rubin added that that was a form not found in amalgam but that the body was capable of converting elemental mercury into methyl mercury. Dr. Rubin quoted the study as follows: "The effects on brain function associated with prenatal methyl mercury

exposure therefore appear widespread and early dysfunction is detectable at exposure levels currently considered safe." Dr. Rubin added that in a related study from the same author, subtle effects on brain function seemed to be detectable at prenatal methyl mercury exposure levels currently considered to be safe. Dr. Rubin asked the rhetorical question, "Is there a level of mercury exposure that can be proven to be safe?" He responded that there was not.

Dr. Rubin offered the following quotes from other studies: [Dr. Vimy]. "Accumulated of amalgam mercury progresses in maternal and fetal tissues to a steady state with advancing gestation and is maintained. Dental amalgam usage as a tooth restorative material in pregnant women and children should be reconsidered."

[Goldman reporting to the American Academy of Pediatrics]. "The developing fetus and young children are thought to be disproportionately affected by mercury exposure because many aspects of development particularly brain maturation can be disturbed by the presence of mercury. Minimizing mercury exposure is therefore essential to optimal child health."

[Drasch]. "Future discussion on the pros and cons of dental amalgam should not be limited to adults or children with their own amalgam fillings, but also include fetal exposure. The unrestricted application of amalgam for dental restorations in women before and during the child bearing age should be reconsidered."

Dr. Rubin said that he thought science had provided some evidence to help answer those questions with evidence not with opinion. He said that regarding the last question he had focused on just one narrow risk factor; risks to children and newborns. He stated that in his opinion he believed that the citizens of King County had the right to that information to help them make decisions for themselves and their children. He said that he believed it should be the obligation of the dentists in the community to provide that information to all of their patients.

Dr. Paul Genung

Dr. Genung thanked the Board for the privilege of being allowed to address the Board on such a vital matter. Dr. Genung stated that mercury was the most poisonous element known to man; the only exception would be radioactive elements that so far did not apply to dentistry. He said that the dictionary defined the word "amalgam" as a mixture of metals with mercury. He said that in dental schools dentists were taught to do amalgam fillings to repair teeth. He stated that those fillings contained 52% mercury and 48%, the rest of was comprised of a mixture of silver, copper, tin and zinc.

Dr. Genung stated that when he was in dental school at the University of Washington, he had been taught that when he became a dentist, 85% of what he would be doing would be to put those kind of fillings in. He said that mercury was a very unique property that many of them might have forgotten since the days that they learned chemistry in school. He said that mercury was liquid at body temperature. He stated that amalgam fillings might look as solid as the Rock of Gibraltar, but when one looked at an amalgam filling under a microscope, one could see jillions of tiny globules of liquid mercury interspersed throughout the mass. Dr. Genung stated that all liquids evaporated, forming vapor and mercury was no exception. He stated that mercury vapor evaporated continually from amalgam fillings in one's mouth. He added that the mercury vapor mixed with the air in the mouth and was inhaled with every breath taken, and then entered the bloodstream through the alveolar air sacs of the lungs. He said it also mixed with saliva and was ingested with every swallow taken. He stated that everyone swallowed between 1,500 and 2,000 times every 24 hours. Dr. Rubin stated that

mercury therefore entered the bloodstream through the villi of the intestines. He added that once in the bloodstream the mercury could be transported to any part of the body. He said that that was the main mechanism by which one received mercury poisoning from fillings.

Dr. Rubin stated that there was no logical or commonsensical way to support the implanting of a deadly poison in the human body. He stated that no rational person who understood the poisonous nature of mercury would willingly choose to have it placed in their teeth or any other part of their body. He speculated that perhaps that was why the dental profession had deceptively referred to those types of fillings as silver fillings. He said that the only reason why people had permitted the placement of those incredibly toxic and dangerous fillings in their mouth was because of ignorance on their part or because they had put misguided trust in their dentist. He said that to advocate the placement of mercury in a human body as a health treatment was to adopt an indefensible position in this argument. Dr. Rubin stated that dentists were expected to be well educated and therefore should know better than to blindly cling to an antiquated procedure that predated the Civil War by several decades.

Dr. Rubin stated that mercury use in dentistry or any other segment of the healing arts was an outrage and was wrong both morally and medically. He said that mercury had been or was being removed from virtually all other aspects of human health care except for one - dentistry. He said it was no longer used as a contact lens solution; that Mercurochrome as a disinfectant has been banned. He added that recently the Centers for Disease Control ordered the removal of mercury as a preservative in childhood vaccines. He stated that antibiotics had replaced oral doses of mercury. He stated that mercury had been outlawed as a component of antifungal paint. Dr. Rubin stated that last year California and several other states had banned mercury thermometers and that in recent years the American Public Health Association, the California Medical Association and Health Care Without Harm had all called for the elimination of putting mercury in a human body but not archaic dentistry.

Dr. Rubin said that he and his colleagues would offer the Board irrefutable evidence that mercury escaped in dangerous quantities from amalgam fillings from the moment they were put into a tooth. He said that in a typical amalgam filling there was a colossal amount of mercury; as much as was in a thermometer - about a half a gram. He added that no parent would place a leaking thermometer in their child's mouth or their own mouth for that matter because mercury was a deadly poison and they knew it. He said that essentially they took the same risk when they got amalgam fillings. He stated that nevertheless, the dental profession by and large preferred to obfuscate the truth about the dangers of mercury. He said they continued the use of rhetoric that bamboozled an unsuspecting public when they referred to those fillings and they hid behind references to phantom studies and flatly ignored the veritable Matterhorn of evidence that condemned those dangerous fillings as toxic time bombs. He said it was not insignificant that mercury fillings had been banned in Sweden and were in the process of being phased out in Germany, Austria, Denmark and Finland. He added that the government of Canada had recommended in 1996 that dentists not place amalgam in the mouths of children or pregnant women. He said that mercury had been measured at levels 30% higher in fetal blood than in maternal blood. Dr. Rubin stated that Nagusa (spelling?), one of the largest dental manufacturers, no longer would even carry amalgam as a dental product. Dr. Rubin stated that Dentist Supply, a major manufacturer of dental amalgam had stated that amalgam was contraindicated for children, pregnant women, and patients with orthodontic braces, patients with kidney problems and persons with mercury hypersensitivity. Dr. Rubin stated that another manufacturer of Evadent (spelling?) further recommended against using it with nursing mothers.

Dr. Rubin stated that as an agency concerned with the health of the public it was imperative that the Board understood that mercury had been implicated in all the chronic degenerative

diseases and all the autoimmune diseases. He stated that those who have had the mercury removed from their teeth and bodies who also have had these serious diseases noticed improvement for many of those conditions. He added that they were not claiming cures but good old common sense dictated that a poison like mercury was certainly not going to help the body work better. Dr. Rubin went on to say that it was well known that mercury was a neurotoxin and an immune system suppressor with undeniable links to cancer, Alzheimer's, multiple sclerosis, mental retardation, autism, chronic fatigue and depression as well as a host of other horrible conditions. Dr. Rubin cited OSHA's statement that the permissible exposure limit to mercury was a concentration of one milligram per cubic meter of air in eight hours. Dr. Rubin stated that mercury was so toxic that there were no levels that were considered safe, only levels that were considered acceptable.

Dr. Rubin commented that while the public lacked informed choice low income people had it worse in that they had no choice at all. He stated that in much government funded dental clinics across the nation children from such families got mercury or nothing. He said that it was an outrage that low income Americans were forced to have such a dangerous toxin put in their mouths. Dr. Rubin stated that last year Congresswoman Diane Watson of Los Angeles introduced legislation at the federal level to outlaw amalgam fillings. He also referenced a class action lawsuit filed by Alan Segal,[spelling?] one of the attorneys involved in the now famous Erin Brochovich case that he believed would change the face of dentistry in America. He said what was at issue was the patient's right to informed consent and the right of the patient to know if a well known toxic substance was being implanted in his teeth. Dr. Rubin mentioned that last year the California State Legislature shut down the California Dental Board in an unprecedented action because the Board defiantly refused to uphold the law requiring dentists to post warning signs about mercury in amalgam fillings. Dr. Rubin cited that other litigation over the mercury amalgam issue was springing up across this nation. Dr. Rubin concluded by stating that some folks were calling for a phase out mercury in dentistry over the next five years. He believes that five years was too long and called for it to be phased out yesterday.

Dr. Andrew Cutler

Dr. Cutler thanked the Board. He said he wanted to comment on a statement made by the previous panel. He said a previous panelist had asserted that the American Dental Association had never had a financial interest in amalgams. Dr. Cutler stated that with access to the Internet one could conduct a patent search. He noted that any patent search would yield two patents that were assigned to the American Dental Association Health Foundation.

Dr. Cutler directed the Board's attention to his slides. He posed his first question - What is Science?" He said that he was not asking them to take his or anyone else's word for whether or not the ADA had a financial interest. He pointed out that science was not something that you relied on experts to do. He said that they might recall their junior high or high school science class. A simple hypothesis, it fits all known facts. He added that facts were observations and that they were all observers. He said if he told them something, it was an alleged fact. If it was in a journal paper it was an alleged fact. He stated that most journal papers didn't qualify as legal evidence, therefore it was hearsay. He said, " - the author said, the patient said - it's not court evidence." Dr. Cutler said that the question was what really happened? He responded that they relied a lot on personal experience in science and that was why scientists took a lot of lab classes so they actually saw the stuff happen and what it looked like. He added that those individuals who had treated patients had their own opinions based on their experience and those who didn't could base their experience on personal and family and friends' health issues.

Dr. Cutler said that he did not advance the hypothesis that mercury in amalgams were dangerous for everyone, he said he believed it was harmful for a small fraction of the population who had individual biochemistry that made them sensitive or who happened to have a high level of exposure. He said you could do epidemiological studies until you were blue in the face but unless you had thousands and thousands in your sample, it would be very unlikely to see anything. He added that that was the reason that adverse effects for all the drugs that the FDA approved and then removed from the market showed up after all of the placebo-controlled double blind studies had been done. He added that you did not pick up adverse effects in those kinds of studies.

Dr. Cutler referred to a paper by Dr. Martin. Dr. Cutler said that one did see evidence that dental amalgam caused health problems. He stated that they saw neurological impairment as a direct function of mercury in urine for dentists and dental assistants. Dr. Cutler said that they tested finger tapping and asked questions of study participants about complaints like arthritis, felt bad, or whether they were depressed. He referred to a graph and noted that there were points scattered all over the place. He said that there was a nice correlation and noted that it was not a straight line. He observed that one could put a line through it, but that some people were less sensitive and some were more, some people had a lot of mercury and nothing had happened to them. He stated that the people who were very sensitive presumably weren't working in dentistry anymore, they were disabled and did not attend the meeting where the work was done.

Dr. Cutler said that it had also been asserted that there were urine and blood levels of mercury that showed that things were safe. Dr. Cutler said that someone had commented on the fact that all of the contraindications were for mercury used in women and children. Dr. Cutler said that all of those studies that were cited to show the safe levels of mercury in the thresholds at which effects happened were on male adults who worked in mercury using factories. He added that the average work time for those people was 8 years. He stated that the ones who were sensitive couldn't last 8 years in a high exposure occupation.

Dr. Cutler said that if one went to more recent studies, one could actually find biochemical differences between the men who worked in mercuries and factories. He said those were the same studies on which all of the health guidelines were based for what was considered a safe exposure.

Dr. Cutler directed the Board's attention to a slide that showed the rate of excretion of mercury by industrial workers in some of the studies, and by people who chose to have their amalgams removed. He observed that the industrial workers got rid of the mercury pretty quickly and therefore didn't accumulate much in their body. He said that many of the people who chose to have amalgams removed held onto it for a long time at the same level of exposure those industrial workers had, they would have had several times as high a body of mercury burden.

Dr. Cutler stated that the work of Dr. Martin and others on neurobehavioral impairments of dentists versus a urine mercury level was incredibly useful for drawing the conclusion that amalgam indeed was harmful to some people. He said that the Board had seen that the dentists in that study were increasingly more impaired as they had higher urine mercury levels. He stated that that was what the data had shown and he did not believe Dr. Martin would argue the point. Dr. Cutler said that if one plotted the urine mercury levels of those dentists on the same graph as the measured urine mercury levels of members of the general population, you obtained the figure that he showed the Board. He observed that the dentists in the study had a lower mercury exposure on average than about 10% of the general

population; the dentist and the population were both exposed by dental amalgam. Dr. Cutler stated that some percentage of the population had less mercury exposure than those dentists. He stated that the Board of Health's job wasn't to say 10% were fine and wonderful and there's no problem. He stated that the Board of Health's job was to worry about the 10% who actually had more exposure than the dentists themselves who were known to be impaired by that exposure.

Dr. Cutler stated that adverse effects were typically picked up by case reports and he pointed out that Dr. Martin had stated that the highest level of proof available in the amalgam issue was the study by Stenman and Grans. Dr. Cutler cited the study wherein he said it showed that people did get amalgam illness from their fillings.

Dr. Cutler reference a study by Huggins and Levy [spelling?] that he said showed that multiple sclerosis patients who had their amalgams removed had dramatic positive changes in biochemical markers of their disease process promptly thereafter. Dr. Cutler stated that one issue could be that one tests multiple sclerosis patients and found in fact that they didn't have much different mercury levels in their blood and urine than the general population, which did not demonstrate that they are not more sensitive to it. He added that a more profound demonstration would be if one removed the exposure and they then improved, i.e., their symptomology went into remission. He said that that happened commonly and that there were many papers and literature to document that.

Dr. Cutler referred to another slide. He said that the slide indicated that mercury levels were shown to correlate with a variety of disabling diseases, many of which put people on welfare and increased health costs for such conditions as diabetes. He said that that was documented in a Japanese study with many hundreds of subjects. He added that with one particular form of heart disease, the levels of many trace elements in cardiac biopsy samples were analyzed and it was found that mercury and antimony were dramatically elevated and the trace elements were slightly elevated factors of 1½ to 2 in samples of a heart muscle foreign patients with that particular condition versus other cardiac problems. He stated that there might be health conditions where mercury was concentrated in an organ and caused the condition in susceptible individuals. He said that to the best of his knowledge no one ever thought of checking for mercury in a cardiac muscle with those people until last year.

Dr. Cutler stated that there were some claims that the amount of mercury absorbed from fillings was negligible. He stated that this might in fact be true for most people adding that most people did not get sick from their fillings, although some did. He stated that some people also absorbed extremely high amounts of mercury from their fillings for a number of reasons such as they might chew a lot, have improperly placed fillings or have saliva chemistry that corroded the fillings rapidly. He said that there were three cases of people whose urinary mercury levels were above 50 micrograms per day, which was what the people working in a mercury-using factory had that required that they cease work or work in a non-exposed location until it came down. He stated that there was the OSHA safety limit based on studies of people who probably weren't that susceptible.

Dr. Cutler stated that the problem with epidemiological studies was that it was very hard to prove a negative.

Dr. Cutler's time elapsed and he thanked the Board for their attention.

Chair Edmonds thanked the members of the second panel for taking time out of their busy days. She called for questions from the Board.

Chair Edmonds acknowledged Board Member Hutchinson.

Board Member Hutchinson stated that Dr. Martin had mentioned alternatives to amalgams were equally scary. He asked if anyone had an idea of what would replace amalgams if it were taken off the market.

Dr. Cutler responded that people did get composites; the least expense alternative. He said that there was a lot of discussion of the estrogenic properties of the composite material. He said that one could figure out how much came out and got into people was not a significant amount. He said it was nothing like the issue with mercury where the amount coming out of the filling was close to the toxic threshold. He added that the amount of estrogenic materials was somewhat less. He said that it was unfortunately true that in making technological progress one might replace one problem with another. He said the question before the Board was whether or not there was a problem now. He said that if one wished to have materials with no problems, one picked highly inert materials such as gold, which was not used primarily for cost reasons.

Chair Edmonds acknowledged Board Member Pizzorno

Board Member Pizzorno said that he thought, that as they left that meeting they needed to consider a couple of principles. He stated that as a Board of Health they thought in terms of large population effects; effects of toxins and effects of infectious agents and that that was important to do. He said it was also important to realize the individual and the huge variations in individual biochemistry and individual biology. He added that there was considerable variation in a person's ability to absorb a toxin, to detox that toxin and the sensitivity to the presence of that chemical. He said he thought it was quite clear that for susceptible individuals mercury was a significant problem, and he thought they should pay attention to that. He said that in terms of large population effects, that it still remained to be seen. He recalled the smoking ads of the '50's and '60's that showed those 100-year centenarians smoking their cigarettes and saying, "See, it doesn't hurt me." Board Member Pizzorno said that indeed there were individuals it didn't hurt, but that when they started to look at the general population and specific individuals, there was no question it was a huge problem.

Chair Edmonds acknowledged Board Member Pageler.

Board Member Pageler commented that she took a poison every day -rat poison. She said that it had been prescribed to her to thin her blood to prevent blood clots. She recalled Dr. Robertson's comment that some very toxic substances had uses in certain doses. She said that she agreed with Board Member Pizzorno that individual doses and sensitivities were key.

Chair Edmonds called for additional comments or questions from the Board. There being none, she thanked the panelists and staff and then adjourned the meeting.

KING COUNTY BOARD OF HEALTH

Carolyn Edmonds, Chair